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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/717,342 | 11/18/2003 | Behdad Jafari | NVID-P000730 | 8175 |

7590 05/03/2004

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EXAMINER

CLARK, JASMINE JHIHAN B

| ART UNIT | PAPER NUMBER |
|----------|--------------|
| 2815 | |

DATE MAILED: 05/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|--------------------------------------|---|--|
| Office Action Summary | Application No. 10/717,342 | Applicant(s) JAFARI ET AL. A | |
| | Examiner Jasmine J Clark | Art Unit 2815 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 8-11, 13-17 and 21 is/are rejected.
- 7) ☒ Claim(s) 5-7, 12, 13 and 18-20 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 4, 8, 11, 14, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Khandros et al. (US 2002/0074653).

Khandros shows in Fig. 9B for example, a device which relates to an IC package comprising a substrate 92 having a top and a bottom; a bypass capacitor 99 (see page 3, para [0019], and page 6, para [0077]. Coupled to the bottom without a cavity; and an array of solder balls 91 facilitates surface mounting to a printed circuit board assembly 10, and wherein the solder balls provide sufficient space between the printed circuit

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board assembly 10 and the bypass capacitor 99. However, Khandros fails to teach having more than one bypass capacitors as claimed. Hence, it would have been obvious to one having ordinary skill in the art to have more than one device, for example more than one bypass capacitors as claimed, as is notoriously known.

Concerning claim 4, the IC package as recited in claim further comprising a chip die coupled to the top in a wire bonding configuration, please see Fig. 9B.

Concerning claims 8, 11, 14, and 17, please see the above discussion.

2. Claims 2, 9, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over the reference as applied to claims 1, 4, 8, 11, 14, 17, and 21 above, and further in view of Soga (JP 61-24255).

As per the above discussion, Khandros teaches that having the substrate 92 which is made of ceramic, but fails to teach wherein the package substrate comprises an organic substrate. Soga teaches a semiconductor device including an organic multiplayer substrate 2. Hence, it would have been obvious to one having of ordinary skill in the art to employ an organic substrate for the reasons as taught by Sago.

3. Claims 3, 10, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over the reference as applied to claims 1, 4, 8, 11, 14, 17, and 21 above, and further in view of Cornelius et al. (US 2002/0185308 A1).

As per the above discussion, the applied references fail to teach having a chip die is coupled to the top in a flip-chip configuration. Cornelius shows a structure of a

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device of an IC package including a chip die coupled to the top in a flip-chip configuration, please see Fig. 4a. Hence, it would have obvious to employ a chip die that couples to the top in a flip chip configuration as claimed for the reasons as taught by Cornelius.

Allowable Subject Matter

4. Claims 5-7, 12, 13, and 18-20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

References Cited

5. Moresco (US 6,535,398 B1), Novak et al. (US 6,727,780 B2), Novak et al. (US 6,727,780 B2), Okeda (US 6,518,666 B1), Malladi (US 5,939,782), Davidson (US 6,400,576 B1), Komiya et al. (US 2002/0011662 A1), and Akiba et al. (US 6,353,540 B1) teach including bypass capacitors.

Telephone Inquiry Contacts

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jasmine J Clark whose telephone number is (571) 272-1726. The examiner can normally be reached on Flex.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on (571) 272-1664. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jjbc/04/29/04


JASMINE CLARK
PRIMARY EXAMINER